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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/936,527	09/14/2001	Karl Reuter	033265-003	4392

21839 7590 10/29/2003

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EXAMINER

LISH, PETER J

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 10/29/2003

15 KB

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)	
09/936,527	REUTER, KARL	
Examiner	Art Unit	
Peter J Lish	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 August 2003.
- 2a) ☐ This action is FINAL.
- 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
 - 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some * c) ☐ None of:
 - 1. ☐ Certified copies of the priority documents have been received.
 - 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
 - * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
 - a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Applicant's arguments filed 8/12/03 have been fully considered but they are not persuasive. Applicant's arguments are based on the assumption that the references require that the emulsion be saturated with impurities at all times. If this were the case, then zero impurities would be lost from the emulsion in the form of crystals, and the crystals formed would thus be 100% pure. The fact that the crystals are not 100% pure leads to the conclusion that some impurities are removed from the emulsion in the crystals. Therefore, upon reintroduction of the emulsion to the aggregate mixture, dissolution of additional impurities is expected to occur.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

Claims 1-3, 5-6, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by WO 97/32644.

A process for crystallization is taught in WO '644 wherein impure substances are dispersed in one or more solvents, such as organic liquids. The organic liquids are then dispersed into a second phase, such as water, to form a micro-emulsion. After cooling, the emulsion is supersaturated with the substance. Seeding with the desired compound then initiates selective crystallization. Stirring, shaking, or ultrasound can optimize the crystallization process. The crystals are then isolated by conventional means, such as centrifugation, and washed with water, which may contain surfactant. After the crystals are separated, the emulsion may be recycled and reloaded with the impure substances.

Claims 1-2, 4-6, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Reuter (US 5,872,259).

A process for crystallization is taught in US '259 wherein impure substances are dispersed in one or more solvents, such as organic liquids by heating, high shear equipment, or ultrasound. The organic liquids are then dispersed into a second phase, such as water, to form a macro-emulsion. After cooling, the emulsion becomes supersaturated with the substance. Seeding with the desired compound then initiates selective crystallization. Stirring, shaking, or ultrasound can optimize the crystallization process. The crystals are then isolated by conventional means, such as centrifugation, and washed with water, which may contain surfactant. After the crystals are separated, the emulsion may be recycled and reloaded with the impure substances.

Claim Rejections - 35 USC § 103

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over WO '644 as applied above and further in view of Marsh (US 3,141,743).

WO '644 does not teach washing the crystals during centrifuging. However, Marsh teaches centrifuging crystals while washing. It would have been obvious to one of ordinary skill at the time the invention was made to wash the crystals of WO '644 during centrifuge, as taught by Marsh, because it results in impurities being washed into the mother liquor of the crystallization process and thereby obtains purer crystals.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over US '259 as applied above and further in view of Marsh (US 3,141,743).

US '259 does not teach washing the crystals during centrifuging. However, Marsh teaches centrifuging crystals while washing. It would have been obvious to one of ordinary skill at the time the invention was made to wash the crystals of US '259 during centrifuge, as taught by Marsh, because it results in impurities being washed into the mother liquor of the crystallization process and thereby obtains purer crystals.

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Davey et al. (Purification of molecular mixtures below the eutectic...) in view of Hurlock et al. (US 4,010,142).

Davey et al. teaches a process of emulsion crystallization which is used to separate and purify mixtures of meta and para chloronitrobenzene (m- and p-CNB). Mixtures containing between 90:10 and 75:25 m/p are added to an emulsion of oil in water having drop sizes in the range of 5-10 microns. The emulsion is then cooled to the desired crystallization temperature and pure m-CNB crystal seeds are added to initiate selective crystallization of the m-CNBs. Davey et al. do not explicitly teach what is done with either the crystals or the remaining emulsion after the crystallization.

Hurlock teaches a similar process for the purification of a material by selective crystallization. Hurlock teaches washing the crystals with water during centrifugation to separate and purify the crystals. Additionally Hurlock teaches recycling the remaining solution and wash liquid to be used between 4 and 20 times for the crystallization of additional impure

material. Doing so is seen to achieve a higher percentage of purification. It would have been obvious to one of ordinary skill at the time of invention to wash the crystals with water during centrifugation in order to separate and purify the crystals. It would have been obvious to one of ordinary skill at the time of invention to recycle the remaining emulsion of Davey et al. to be used for the crystallization of additional impure material, as taught by Hurlock, in order to achieve a higher degree of purification.

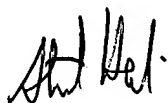
Regarding claims 5 and 9-10, it is not explicitly taught that the impure material is mixed with the emulsion by stirring, heating, or ultrasound. However, it would have been obvious to one of ordinary skill at the time of invention to do so, as they represent conventional means of mixing.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 703-308-1772. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 703-308-3837. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661. or 571-272-1354.



PL

STUART L. HENDRICKSON
PRIMARY EXAMINER